Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 12/10/13 at 9:00 a.m.

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found at: http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html.

Attendees

DWR: Mike Ford, Kevin Reece, Farida Islam, Aaron Miller, Andy Chu, Dan Yamanaka, Elaine Jeu, James Gleim, Tracy Pettit, Reza Shahcheraghi
FWS: Leigh Bartoo, Craig Anderson
NMFS: Barbara Rocco, Jeff Stuart, Barb Byrne, Garwin Yip
Reclamation: Russ Yaworsky, Josh Israel
DFW: Chris McKibbin, Colin Purdy, Bob Fujimura
EPA: Erin Foresman
SWRCB: Scott Ligare
USGS: not present

Agenda

1. Agenda review and introductions
2. Fish Monitoring
3. Current Ops
4. Water quality & DCC operations
5. Late-fall-run release schedule
6. Check on current and upcoming RPA actions
7. DOSS Advice?

Action Items:

11/26: It was suggested that DOSS review the "key" for determining "smolt" vs. "juvenile" at Glenn–Colusa Irrigation District (GCID) and compare to the keys used at other monitoring locations. Ideally, life-stage classification would be standardized for all studies and monitoring locations. Byrne (NMFS) will ask about the key used at GCID and report to DOSS when she has more information (12/3, carried forward).

> 12/10: Purdy (DFW) presented a report, which was also forwarded to DOSS, on the GCID juvenile vs. smolt Chinook classification based on a conversation with GCID staff as follows:
>
> Salmonid life stages
> *Stage 1* = Alevin also sometimes called "yolk-sac fry" are newly emerged fish with a visible yolk sac ("unzipped").
> *Stage 2* = Fry are recently emerged fish whose yolk is absorbed ("zipped-up"), and whose pigmentation is largely undeveloped.

Stage 3 = Parr are darkly pigmented fish with characteristic dark, oval- to round-shaped parr marks on their sides, no silvery coloration, and whose scales are firmly set.
Stage 4 = Silvery parr have visible but faded parr marks, and a sufficient accumulation of purines to produce an intermediate degree of silvering.
Stage 5 = Smolts have highly faded parr marks, or lack them altogether, a bright silver or nearly white coloration, a more slender body shape (i.e., lower condition), a black trailing edge on the caudal fin, and easily shed (deciduous) scales.

Fish classified to stages 1–4 are reported as "juveniles" in the GCID reporting on rotary-screw-trap (RST) catch; fish classified to stage 5 are reported as "smolts". These are similar to the Interagency Ecological Program (IEP) steelhead classifications. On 11/26, DOSS suggested that it would be interesting if these classifications were compared to those used at different sampling stations in the Delta. Purdy believes it likely that these classification descriptions are being used at other places; he knows that Tisdale and Knights Landing RST sampling locations use the same stage classification as GCID, although no life-stage information is provided on the Tisdale and Knights Landing data worksheets distributed by e-mail.

12/3: Stuart (NMFS) will inquire about the winter-run juvenile production estimate (JPE) timeline and report back.

12/10: Israel (Reclamation) provided an update from the Winter-run Project Work Team (WR PWT) JPE subgroup meeting. The JPE subgroup has been discussing some of the terms used to calculate the JPE, including the latest information on in-river survival in the Sacramento River. Multiple years of data from differential ocean recovery rates of coded wire-tagged late fall-run Chinook suggest an in-river survival of 54%; data from 4 years of acoustically tagged late fall-run Chinook studies suggest an in-river survival of 45%; data from a single year of information from acoustically tagged winter-run Chinook suggest an in-river survival of 16%. Other JPE components discussed were: Winter-run escapement (estimated to be >6,000) egg-to-fry survival (increased 1% to 26% based on 12 years of data).

JPE will tend to increase with increasing escapement, increasing egg-to-fry survival, and increasing in-river survival; the net effects of any shifts in the estimates of these JPE components also affect the values of: (1) the trigger threshold for the JPE-based trigger of Action IV.2.3, and (2) the incidental take limit (2% of the winter-run JPE).

The JPE subgroup expects to provide recommendations on this year's winter-run JPE calculation to the full WR PWT in late January. It has been suggested that the JPE subgroup and/or NMFS include detailed information on the data used to estimate each JPE component.

One DOSS participant commented that this entire process has political ramifications yet seems to be rushed; we are already in December and still anticipating a JPE sometime in January, and looking at a potential drought-emergency type of year. There was a question of why this was not brought up at the annual review in terms of changing the calculations given the ramifications. JPE was not addressed at the annual review because (1) development of the agenda began before this was an issue, (2) most likely because of

point #1, when technical teams and the Interagency Management Team were asked for potential annual review topics, no one suggested a review of the JPE calculation. NMFS is considering bringing it up to the annual review panel for the 2014 review.

It was noted that the structure of the JPE calculation was not changing, but that each component was being reviewed by the JPE subgroup, with recommendations potentially made to NMFS to update the science. Because we have new information on in-river survival, it makes sense to consider an update to that component.

Although no longer an action item, the JPE calculation and timeline will be put on next week's agenda, along with an agenda item specific to whether the JPE-based trigger in Action IV.2.3 will be implemented using a preliminary JPE or deferred until a final JPE is available (even if that occurs after 1/1/14). Reece (DWR) requested clarification from NMFS as to where, with regards to the JPE, Delta entry begins.

Fish Monitoring: The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. See also: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

Location	Chipps Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	GCID	Knights Landing RST	Tisdale RST	Beach Seines
Sample Date	12/4, 6	12/4, 6	12/4, 6	12/3–9	12/4–9	12/3–9	12/4–6
Total Catch	**6**	**0**	**0**	**495**	**0**	**0**	**0**
FR				6			
WR				419			
SR				18			
LFR	1 (133 mm)			49			
Ad-Clipped Chinook							
DS	2 (62 & 64 mm)						
Splittail							
Longfin	3 (76–121 mm)						
SH (ad-clip)							
SH (wild)				1			
W. Temp. (avg. °F)	11.1	9.5	8.9	51.8	46	44.5	9.3
Flows (avg. cfs)					4,531	4,229	
Turbidity (avg. NTU)	20.1	5.2	7.6	1.9	4.0	7.8	12.3
WR/LFR Avg. CPUE				3.45			
FR/SR Avg. CPUE							

CPUE = catch per unit of effort reported as the average fish/hour over reported sampling dates; ACT = acoustic tag; GCID = Glenn–Colusa Irrigation District; RST = rotary screw trap

[1]Flows at GCID are Bypass flows (in cfs) not Sacramento River flows.

[2]Note that FTU is used at Knight's Landing in place of NTU.

Late-Fall-Run Chinook Release: There will be 275,000 fish from the 2013 brood year production stock (average fork length is 135 mm) released today (12/10) from Coleman National Fish Hatcher (Coleman); 100% will be fin clipped and coded wire tagged (CWT'd). These fish could be observed in downstream sampling locations soon, but because of the tags and fin clips, there should be no issue with confusing them with wild winter run.

Coleman Late-Fall-Run Surrogate Releases: Per the DOSS discussion on 11/26 and a request from Coleman to provide a suggested schedule for the late-fall-run surrogate releases, a schedule was provided that advised releases be separated by at least 2 weeks and be coincident with a precipitation event. Given the potential for limited precipitation events, Coleman asked when to release the surrogate groups in the event of no precipitation event within the provided release window. DOSS recommended that the

- first group of spring-run surrogates be released a week after the production group and with precipitation, if possible, but no later than the end of December;

- second group of spring-run surrogates be released 2–3 weeks after the first group and with precipitation, if possible, but no later than mid-January; and

- third group of spring-run surrogates be released 2–3 weeks after the second group and with precipitation, if possible, but no later than the last week of January (unless a storm is anticipated for first week in February, in which case DOSS recommended that the surrogate release be delayed to coincide with that rainfall event.

One DOSS member opined that it is not critical that the releases be timed with a storm event based on his belief that the released fish will just hold over and not actively migrate downstream until a rainfall event does occur.

Fish Salvage: Fujimura (DFW) reported data from 12/1 through 12/8. No listed species were salvaged at either facility. Preliminary results indicated that no listed species were salvaged at either facility on 12/9.

Operations (12/10/13)

SWP		**CVP**	
Exports (cfs)			
Clifton Court Forebay	1,500	Jones Pumping Plant	1,000 (will remain at that level for the immediate future)
Reservoir Releases (cfs)			
Feather - Oroville	1,250	American - Nimbus	1,300 (a potential reduction will be discussed during Thursday's B2IT* meeting, as Reclamation anticipates storage in Folsom to drop below 200 TAF by the end of December.)
		Sacramento - Keswick	3,750

		Stanislaus - Goodwin	200
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	245	San Luis (CVP)	295 (30)
Oroville	1,373	Shasta	1,687
New Melones		Folsom	221
Delta Operations			
DCC	Closed (on 12/1)	Sacramento River at Freeport (cfs)	8,681
Outflow Index (cfs)	7,600	San Joaquin River (cfs) at Vernalis	1,075
Total Delta Inflow (cfs)	10,255	OMR (daily) (cfs)	
Water Temperature (°F)		OMR 5-day avg (cfs)	
X2 (km)	>81 (upstream of Collinsville)	OMR 14-day avg (cfs)	
E/I (%)	23.3 (3-d avg)		

*The effects of flow reductions on the American River on steelhead spawning and the possibility of dewatering redds will be discussed at the B2IT meeting on 12/12.

Water Quality (WQ): WQ remains acceptable with no immediate need for opening the Delta Cross Channel (DCC) gates. With the high tides coming next week, WQ conditions could worsen and the operators will continue to monitor these conditions. Recent improvements in WQ were partly caused by receding tides. There was a question about water hyacinth invasion this year and whether it was causing a problem. At the current pumping rates, the plant is being dealt with reasonably and there is currently no concern.

RPA Actions:

- IV.1.1 (Monitoring and alerts for DCC gate operations): No alerts tripped in the past week.
- IV.1.2 (DCC gate operations): No triggers exceeded in the past week.
- IV.3 (Salvage and entrainment reduction): No triggers exceeded in the past week; this action will end December 31
- IV.2.3 (OMR flow management): This action begins January 1**.**

Smelt Working Group (SWG): Data were distributed to participants but SWG did not meet. Previous SWG meeting notes are available at: http://www.fws.gov/sfbaydelta/cvp-swp/smelt_working_group.cfm.

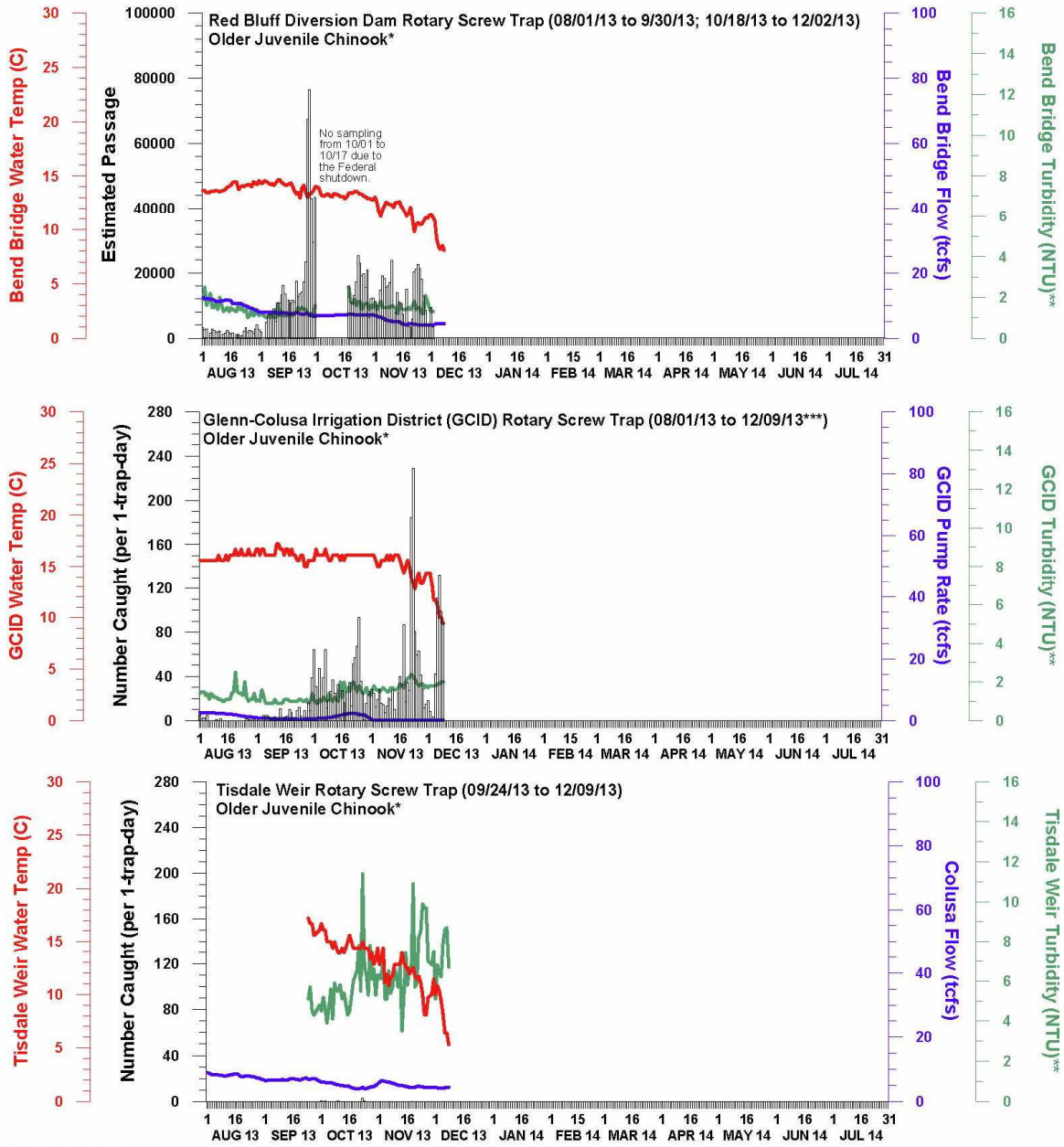
DOSS Advice to WOMT and NMFS: None.

Holiday Schedule: DOSS meetings are scheduled for 12/24 and 12/31; however, this schedule will be revisited at the next meeting (12/17), when there should be more information on who would be available to participate and on whether upcoming weather patterns and WQ conditions indicated that WQ issues might need to be addressed before January.

Next Meeting: The next DOSS conference call will be on 12/17 at 9:00 a.m.

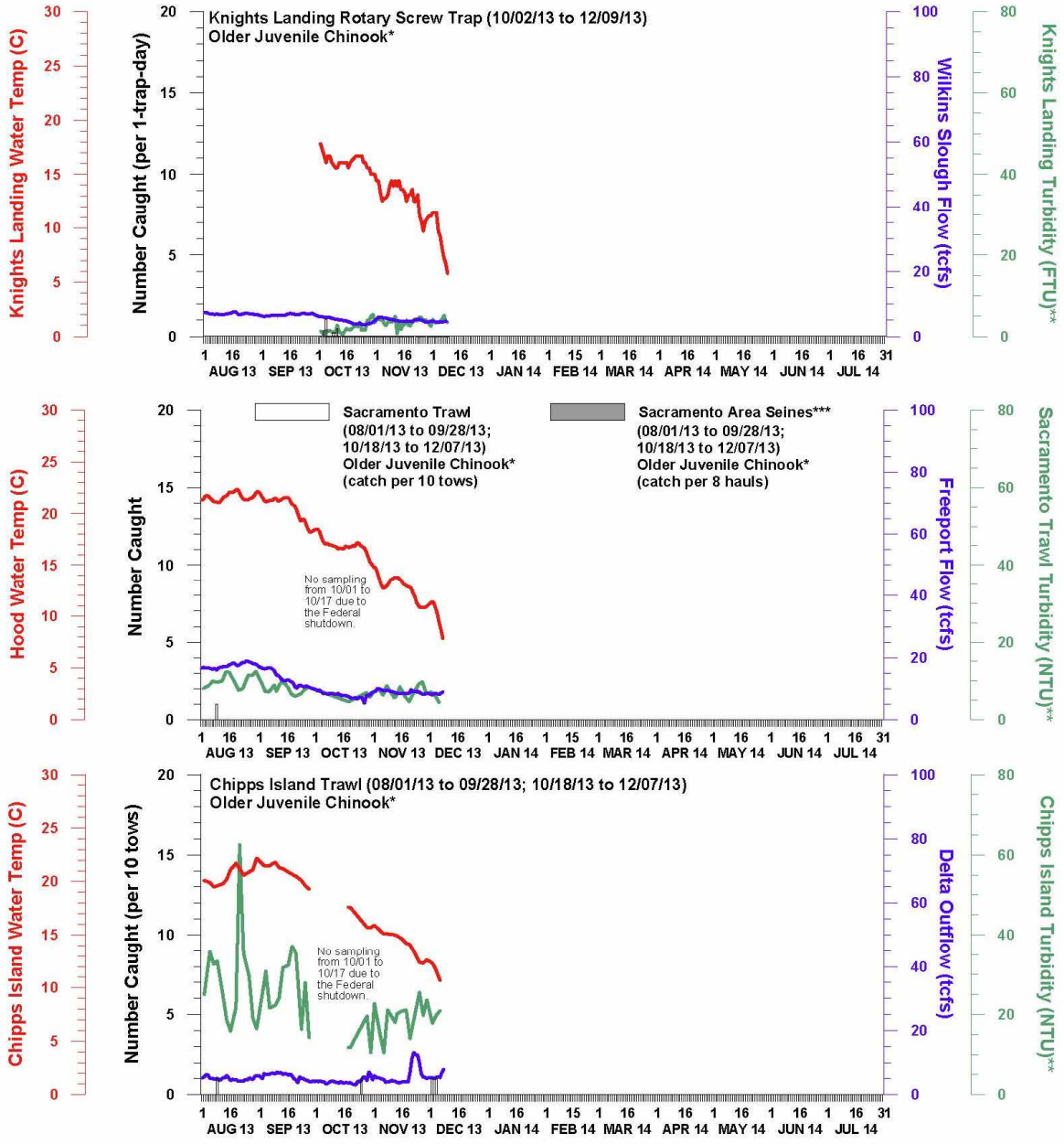
Below are graphs provided by DWR for Chinook salmon and steelhead observed at monitoring locations in the Sacramento and San Joaquin rivers and Delta. For additional graphs, please visit the DWR website at:
http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



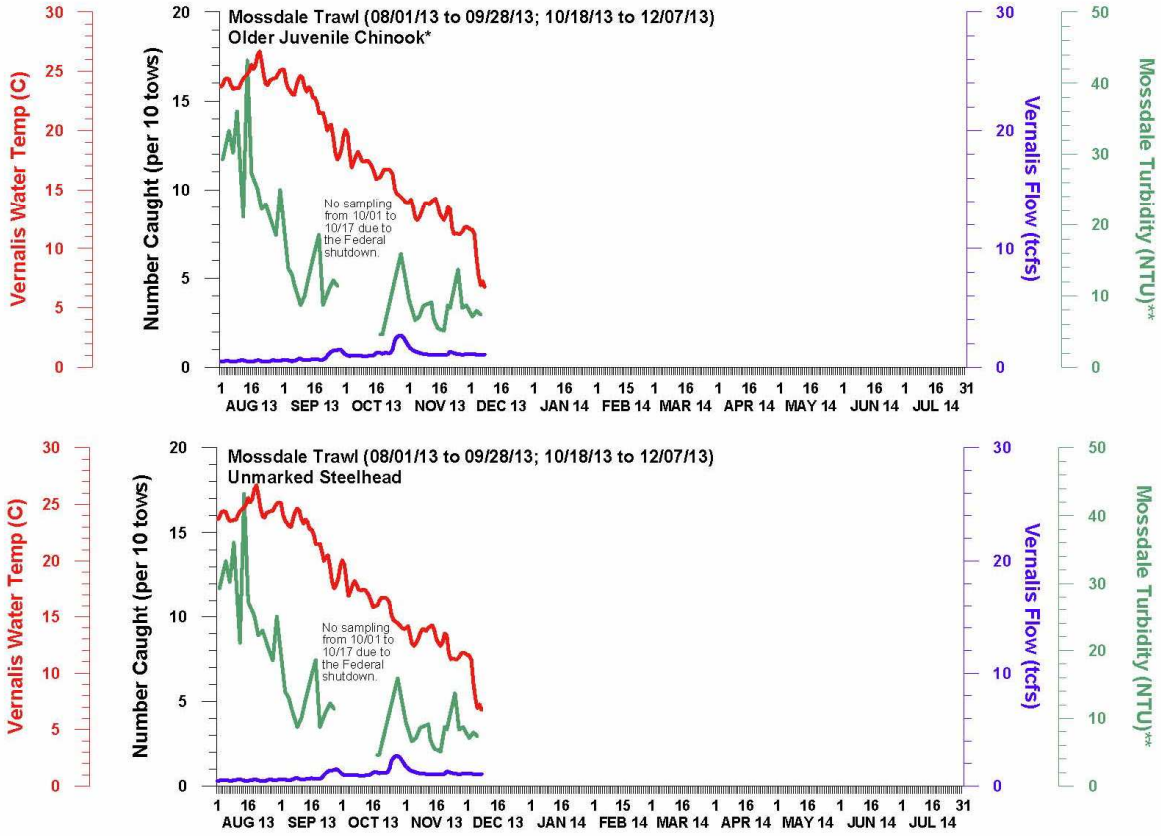
DWR-DES 09 DEC 2013
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.
***GCID: Five older juveniles caught on 9/25, 9 older juveniles caught on 9/27, 57 older juveniles caught on 10/5 and 23 older juveniles caught on 11/14. However, catch could not be standardized to 1-trap day since hours fished could not be calculated due to problems with the revolution counter. As a result, data are not presented on the graph.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER AND CHIPPS ISLAND



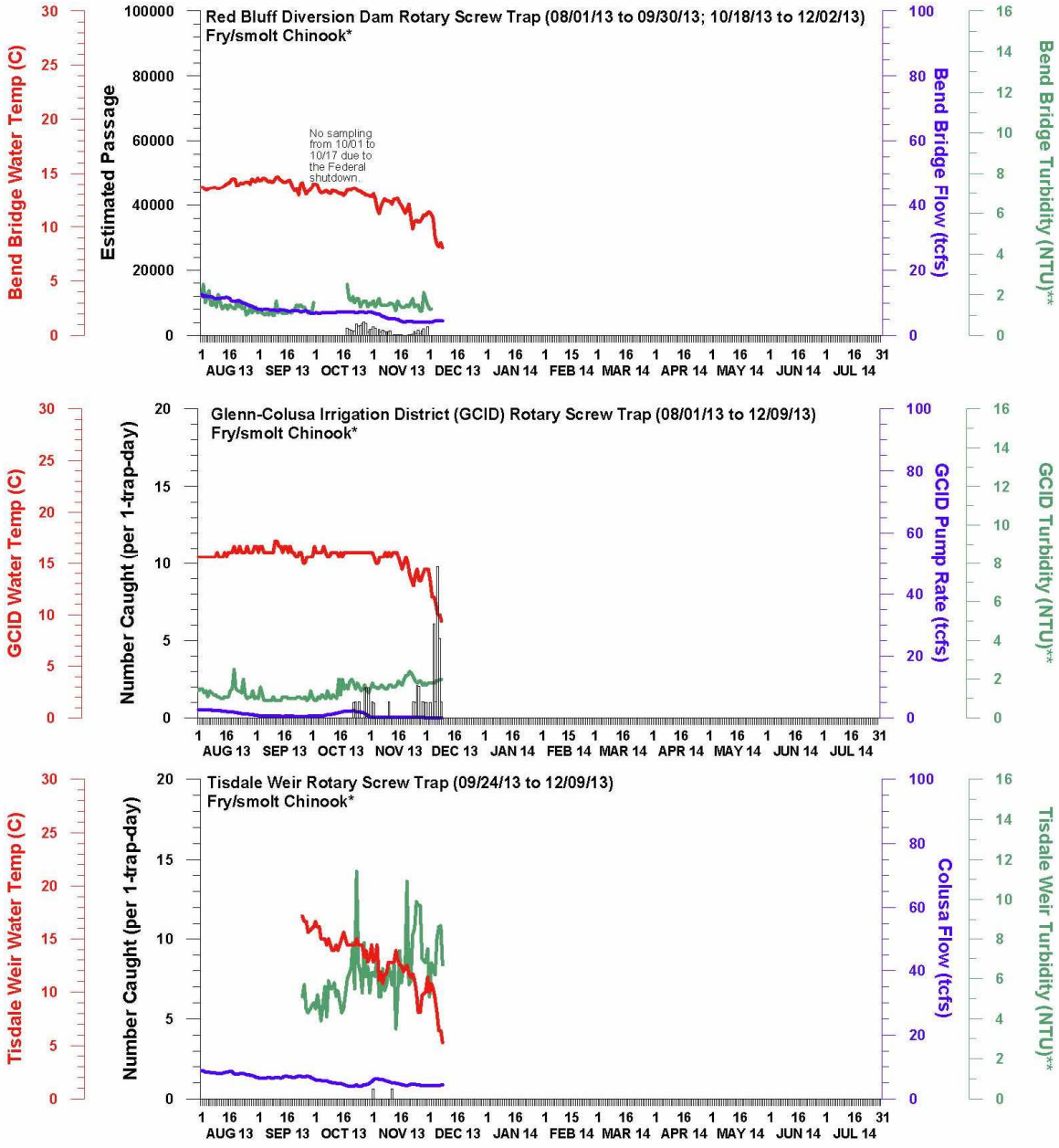
DWR-DES 09 DEC 2013
Preliminary data from DFW, FWS, and CDEC; subject to revision.
*Older Juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher Model) for which a race is assigned on a given sampling date.
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured. Knights Landing turbidity measured in FTU, which should be roughly equivalent to NTU.
***Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK AND STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER



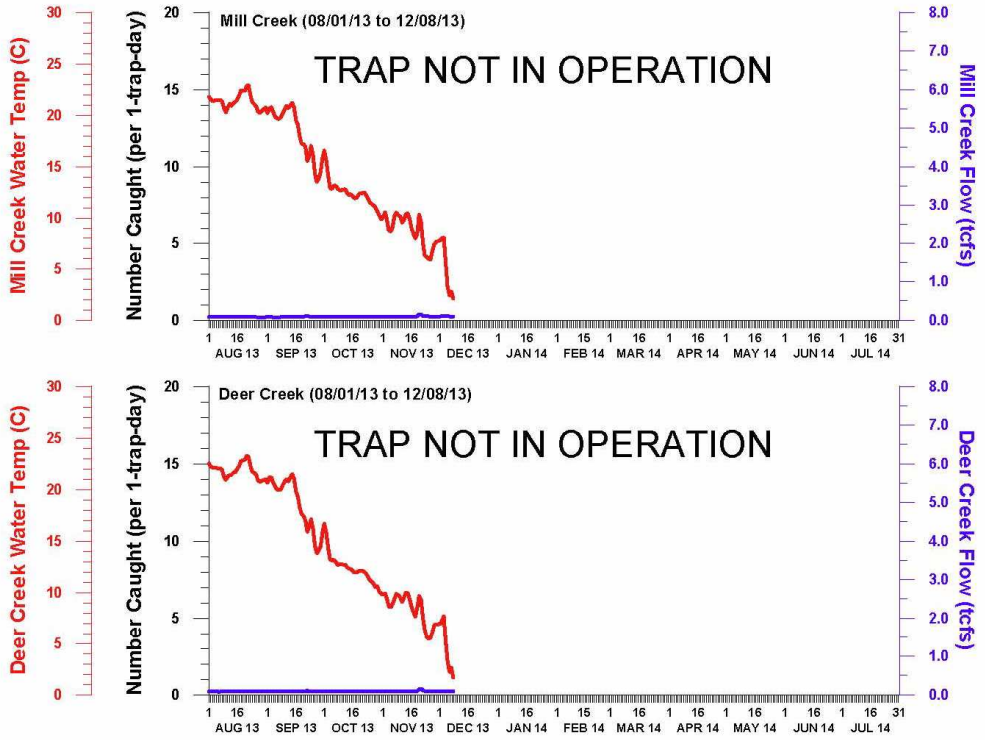
DWR-DES 09 DEC 2013
Preliminary data from FWS and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE SACRAMENTO RIVER



DWR-DES 09 DEC 2013
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.
*Fry/smolt Chinook defined as all Chinook less than the minimum winter run length-at-date criteria (Frank Fisher model).
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

WATER TEMPERATURE AND FLOW MEASURED AT MILL AND DEER CREEK



DWR-DES 09 DEC 2013
Preliminary data from CDEC; subject to revision.